2nd ICHMS & 2nd LSC

PROCEEDING

ISBN: 978-602-757-793-0

PROCEEDING

The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

"Towards a Better Quality of Life through Interdisciplinary Research"

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

UMY ICMHS Life Sciences SOCIETY

PROCEEDING

The 2nd International Conference of Medical and Health Sciences (ICMHS) and The 2nd Life Sciences Conference (LSC) 2016

"Towards a Better Quality of Life through Interdisciplinary Research"

Yogyakarta, 9th-10th December 2016
The Alana Hotel and Convention Center

TABLE OF CONTENT

COMMITTEE viii

WELCOMING SPEECH
Welcome Message from Comittee ix
Welcome Message from Dean x
Welcome Message from Rector xi
Welcome Message from the Head of Provincial Health Office Special Region of Yogyakarta xiii

KEYNOTE SPEAKER OF INTERNATIONAL CONFERENCE xv

REVIEWER xvi

FULL ARTICLE
Diabetic Neuropathy - A Chance Towards A Better Treatment
Tri Wahyuliati 2

Herbal Medicine a Holistic Approach; in Case of Food Supplement Formulation of *Sauropus androgynus* and *Elephantopus scaber* to Modulate Immune and Hormonal System in Pregnant *Salmonella typhi* Infected Mice
Muhammad Sasmito Djati 10

Continuing Competence of Practicing Nurses in Indonesia
Fitri Arofiati, SKep.,Ns, MAN Ph.D 19

The Influence of Neuromuscular Taping (NMT) in Walking Speed for the Patients After Ischemic Stroke
Umi Budi Rahayu..... *29*

Correlation between Larvae Free Number with DHF Incidence in Sleman, Yogyakarta, Indonesia
Tri Wulandari Kesetyaningsih, Sri Andarini, Sudarto, Henny Pramoedyo 34

Correlation Interdialytic Weight Gain-Idwg towards Physical and Psychological Health to Quality of Life in Patients with Hemodialisa
Cecilya Kustanti, Maria Putri Sari Utami..... 42

Quality of Life in Hemodialysis Patiens with Hypertension
Maria Putri Sari Utami, Elsye Maria Rosa, Azizah Khoiriyati 48

Environmental Housing Characteristic of Pulmonary Tuberculosis Sufferers in Slum Area
Iwan Stia Budi, Yustini Ardillah, Indah Purnama Sari, Dwi Septiawati 55

Exploration Study in Psychological Changed on First Trimester Pregnant Women at Kembaran II Health Center, Banyumas
Wilis Dwi Pangesti, Dewi Ambarwati, Inggar Ratna Kusuma 63

The Anxiety of Pregnant Mother with History of Abortion in Health Service 2 Banyumas Qualitative Study
Evicenna Naftuchah Riani, Wilis Dwi Pangesti, Diah Atmarina Yuliani 72

Analysis of Infection Control Risk Assessment and Strategies to Reduce Health-Care Associated Infections in RS PKU Muhammadiyah Gamping Yogyakarta
Nurmalita Sari, Elsye Maria Rosa..... 76

Health Promotion Program for Disaster Eruption of Mount Merapi Refugee in Youth Centre SlemanDistric, Yogyakarta Special Province, Indonesia
Novitasari Ratna Astuti 91

Pap Smear is Important Screening of Cervical Cancer for Women
Ivanna Beru Brahmana..... 100

Analysis of Compliance on Implementing Standard Precautions on Dental Health Service at PKU Muhammadiyah Gamping Hospital of Yogyakarta
Maria Margaretha S Nogo Masa, Elsye Maria Rosa 108

Qualitative Study of Stakeholders' Knowledge Regarding Alert Village Program in Ogan Ilir Regency
Asmaripa Ainy, Iwan Stia Budi..... 123

The Influence of Parents Knowledge and Health Care Access to the Identification of Children with Hearing Impairment
Asti Widuri, Alazi, Muhammad Pringgo Arifianto 131

The Comparison of Maternal Leukocytosis Incidence between Preterm Premature Rupture of Membranes and Premature Rupture of Membranes at Term in Panembahan Senopati Hospital Bantul Yogyakarta
Choirotun Jum'iyyatin Nisak, Supriyatiningsih 137

Analysis of Patient Safety Culture Instrument by MaPSaF
Arum Astika Sari, Arlina Dewi 143

The Relationship of Fish Consumption to Cognitive Development in Students of SD Saptosari, Gunungkidul, Yogyakarta
Dewi Ngaisyah 158

Inter Professional Education and Collaborative Practice: Reflection from Health students
Wiwik Kusumawati, Ika Setyawati, Romdzati, Likky Tiara Alphianti 164

Steroidal Saponin in Ethanol Extract Tuber of Purple Yam (*Dioscoreaalata L.*) Decrease IL-4 Density of Blood Sera on BALB/c Mice Model Digestive Tract Allergy
Sri Nabawiyati Nurul Makiyah, Muhaimin Rifa'i, Widodo, Muhammad Sasmito Djati 173

Managerial Leadership Competence in PKU Muhammadiyah Hospital of Gamping
Ranggit Oktanita, Qurratul Aini, Ekorini Listiowati 184

Malaria Occurrence Factor Analysis Based on Elevation of Sea Surface in the District of OganKomeringUlu, South Sumatra
Pademi Alamsyah, Chairil Anwar, Dwi Setyawan, Laila Hanum 200

Increasing Family Involvement to Reduce of Cigarette Consumption with Participatory Learning Action (PLA) Approach
Tri Hastuti Nur Rochimah, Salmah Orbayinah 212

Air Pollution Effect to Human Health in Palembang City
Marsidi, M.T. Kamaluddin, Fauziah N. Kurdi, Novrikasari 230

Identification of Patient Satisfactory Profile for Outpatient Pharmaceutical Service at Private and Government Hospital within Semarang District
Pramitha Esha Nirmala Dewi, Novita Dwi Dahliyanti 241

Intervention of Family Nutritional Awareness to Increase Family's Food Security
Fatmalina Febri, Anita Rahmiwati, Fenny Etrawati 249

The Effects of Exercises in Molecular Neuron Cells of Cerebellum in Congenital Hypothyroidism Rats
Idiani Darmawati, Marten Bhara Suryo Aji, Zulkhah Noor 258

The Effect of Air Freshener Exposure on Corneal Thickness of White Rat (*Rattus norvegicus*)
Yuningtyaswari, Pajar Sigit Nugroho 265

The Correlation between Education about Personal Hygiene and Knowledge and Attitude of Personal Hygiene of the Adolescent
Kusbaryanto, Wahana 272

The Relationship between Sports Activities and Premestrual Syndrome In SMA N 1 Sentolo, Kulon Progo
Fenthy Vabiella, Alfaina Wahyuni 277

Relationship Thyroid Status to the Physical Growth and Psychomotror Development on Children Under 2 Years in Endemic Areas of Iodine Deficiency Disorders in District Samigaluh of Kulonprogo Regency
Adang Muhammad Gugun, Zulkhah Noor, Jifani Rasyad, Mardylla Nur Fitriany .. 282

Baby Blood Vessel Detection-Based Touch Sensors
Ade Pajar Pirdianto, Anna Nur Nazila Chamim 299

Analysis of Factors that Influence Smokers Using Alcohol among Students in a Private University in Yogyakarta
Iman Permana, Gibran Ilham Setiawan 306

The Effectiveness of Combined Warm Water Foot Submerging and Breath Relaxation Therapy on Lowering the Blood T Pressure in Hypertensive Patients in the Work Area of Puskesmas Penumping Surakarta
Prima Trisna Aji, Novita Kurnia Sari, Sri Nabawiyati Nurul Makiyah 315

Assessment of Interprofessional Communication and Collaboration: Using Multi Methods
Sri Sundari Purbohadi 335

Bed Side Teaching as Effort for Decreasing Needle Stick and Sharp Injury in Clinical Practice Students of PSIK FKIK UMY
Azizah Khoiriyati, Novita Kurnia Sari 342

The Relationship between Working Period and Cholinesterase Blood Levels among Pesticides-Spraying Workers in the Oil Palm Plantation
Restu Dewi Lestari, Merry Tiyas Anggraini 350

The Effect of Interpersonal Relationship toward Birth Satisfaction
Hema Dewi Anggraheny 356

Effect of Early Mobilization Education of The Level Anxiety and Independence of Patients After Total Knee Replacement in Hospital
Amik Muladi, Sagiran, Azizah Khoiriyati 363

The Effect of Normal Dose Extract Gempur Batu Kejibeling (*Strobilanthus crispus.BL*) to the Histological of Rat's Digestive Tract
Yoni Astuti, Ali Usodo Mulyo, Harminani 371

Effectiveness of Alcohol 70%, Clorhexidine Gluconate 4% Soap and Irgasan DP 300 as Hand Sanitizers in Reducing Bacterial Growth
Inayati, Pinter Hartono 377

Committee of ICMHS & LSC 2016

Supervisor	dr. Ardi Pramono, Sp.An, M.Kes
Chair	dr Iman Permana, M.Kes, Ph.D
Partner	Dr Zahid Iqbal, Ph.D
Secretary	Winnie Setyonugroho, S.Ked, MT, Ph.D
Secretariat	dr Bramantyas Kusuma H, M.Sc
	Futuh Hidayat, SEI
	Elida Tri Grahani, SE
Treasury	dr Hidayatul Kurniawati, M.Sc
Scientific section	Dr dr Ikhlas M Jenie, M.Med, Sc
	Dr Sri Nabawiyati Nurul Makiyah, S.Si, M.Kes
	Lia Fitriana, SP
Programme section	dr Ika Setyawati, M.Sc
	dr Imaniar Ranti, M.Sc
	dr Ahmad Ikliludin, SpM
Publication and Documentation section	dr April Imam Prabowo
	Arif Hadianto, ST
Logistic and Transportation	dr Muhammad Kurniawan, M.Sc
	Aris Nuryanta, SH
	Muhammad Ma'rifatullah Katiga Putra
	Dwi Hatmo Budi, S.IP
Fund Raiser	dr Maria Ulfa, MMR
	dr Akhmad Syaiful Fatah Husein, SpAn

Chair person of The 2nd International Conference of Medical and Health Sciences and The 2nd Life Sciences Conference 2016

Welcome to Jogja, sugeng rawuh!

For the second time, the Faculty of Medicine and Health Sciences Universitas Muhammadiyah Yogyakarta is going to conduct the 2nd International Conference of Medical and Health Sciences (ICMHS) this December in vibrant Yogyakarta, Indonesia. This year we are going to collaborate with the Life Sciences Society of Pakistan for their 2nd Life Sciences Conference (LSC) with Dr. Zahid Iqbal as the general secretary.

This year's conference theme "Towards a better quality of life through interdisciplinary research" will be celebrating an era of seamless interdisciplinary integration and collaboration in scientific innovations with the involvement of more extensive topics and disciplines in the conference. We aim to exhibit the products of that kind of approach in solving challenges, improving the quality of life, and creating sustainable developments.

We are happy to announce that our conference is filled with Invited speakers from Pakistan, United States of America, Uni Emirates Arab, Malaysia and Indonesia. Presentations will be conducted in oral as well as poster that covers topics from medicine, public health, dentistry, pharmacy, biomedical to agriculture. To put more credibility to the conference we are collaborating with Isra Medical Journal and the Asian Journal of Agriculture and Biology to publish selected papers from the event. Other paper will be published in the ISBN Proceeding book.

The last but not least, enjoy the conference, start networking and sharing ideas, and let immerse yourself to the heritage cultural ambient of Jogja, sumonggo!

Yogyakarta, 1st December 2016

dr. Iman Permana, M.Kes, Ph.D.

Dean of Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta

Assalamu'alaikum Wr. Wb.

Science, especially in the areas of health and life growing more rapidly. We need to work together in the research of various disciplines to the advancement of science and to provide benefits to human life.

After successfully organized international scientific meeting last year, the Faculty of Medical and Health Sciences Universitas Muhammadiyah Yogyakarta, held the second scientific meeting ICMHS along with "2nd Life Sciences Conference". In this second scientific meeting, FKIK UMY collaborates with various researchers, among others from Pakistan, Malaysia, and the United States. Taking the theme "Towards a better quality of life through interdisciplinary research" we hope to establish cooperation with various parties to be able to contribute ideas to the civilization of human life.

Finally, we congratulate the scientific meeting in the city of Yogyakarta Indonesia. Enjoy the beautiful city of Yogyakarta with priceless historical relics. We hope that this meeting can run smoothly and provide benefits to the advancement of knowledge.

Wassalamu'alaikum Wr. Wb.

Yogyakarta, 1st December 2016

dr. Ardi Pramono, M.Kes, Sp.An.

Rector of Universitas Muhammadiyah Yogyakarta

Assalaamu'alaikum Wr. Wb.

Ladies and Gentlemen,
Welcome to the 2nd International Conference on Medical and Health Science in conjunction with the 2nd Life Sciences Conference 2016
Welcome to Yogyakarta City of Tolerance
Our Faculty of Medicine and Health Sciences has been doing such international conference almost every year for the last ten years. This and other previous conferences are the things that supporting our vision as an excellence and Islamic university, a young and global university. We will always try to keep monitoring the development of science through sending more lecturers to do the sabbatical leave overseas, doing international research collaborations and also the international conference. Each department should do this strategy of internationalization so that each department has its own network. Faculty of medicine and health science is one of the most progressive units in implementing this strategy by inviting international experts on a regular basis. This program will certainly strengthen our vision.
International conference on medicine and health sciences is a smart choice to offer our lecturers access to the most recent development of the subjects. The participants will also gain the same knowledge and latest information on medicine and health sciences. As everyone knows that the development of science and technology are faster today compared to the previous period. Information technology, computer, and other development havefastened the transformation of medicine and health science into the different and more complex stage.

Cellular technology, for instance, can be used for several functions including those that directly impacts our daily life. There is no long distance call anymore today because cellular phone can do everything we need to contact other people far from where we stand anytime anywhere. People will finally innovate cellular phone for the sake of personal health services. We will in the future using our simple cellular phone to detect our body temperature, blood pressure, even how much fat we have in our body and how much it is supposed to be. We may also be able to check the health of our body without leaving our house and order medicine without going into the drug store. Everything is almost possible as long as we think hard for the better of people in the future. Enjoy the conference and don't forget to visit our rich tourist destinations, mountains, beaches or caves (underground waterways).

Thank you

Wassalaamu'alaikum Wr. Wb.

Prof. Dr. Bambang Cipto, MA

Keynote Speech

by Head of Provincial Health Office Special Region of Yogyakarta in International Conference of Medical and Health Sciences and Life Sciences Conference

The Alana Hotel and Convention Center, Yogyakarta, December 9-10, 2016

The honorable:

- Rector of Muhammadiyah University of Yogyakarta,
- The Dean of Medical and Health Sciences Muhammadiyah University of Yogyakarta,
- The chairman of organizing committee of the international conference of medical and health,
- Distinguished guests and colleagues.

Assalamu'alaikum Warahmatullahi Wabarakatuh,
First of all, we thank God for His blessings that today we may attend the International Conference of Medical Health Towards a Better Quality of Life Through Interdisciplinary Research in Yogyakarta.

My distinguished colleagues,
In Indonesia National Long Term Development Plan (2005-2024), the Indonesian Ministry of Health have determined a paradigm shift that have governed health services in health development plan. There has been a shift from Curative Health Services to Preventive and Promotive Health Services.
Recently, Indonesia suffers from a triple burden of diseases as health development challenges. The triple burden of diseases are: 1) the backlog of common infections, undernutrition, and maternal mortality; 2) the emerging challenges of non-communicable diseases (NCDs), such as cancer, diabetes, heart disease; and 3) mental illness, and the problems directly related to globalization, like pandemics and the health consequences of climate change.

Dear colleagues,
Here are some data that show several health problems in Indonesia:

1. Maternal mortility rate in 2015 is 4,809 cases, infant mortality rate in 2015 is 22,267 cases;
2. Regarding to children under the age of five, the national stunting rate is 37.2% which consists of 18% for very short dan 19.2% for short (Riskesdas 2013);

3. HIV testing coverage is 14% dan antiretroviral (ARV) therapy coverage is 65.58% (Directorate General of Disease Control and Prevention Ministry of Health, 2015);
4. Tuberculosis (TB) notification rate in 2015 is 73.5% and tuberculosis treatment success rate is 72% (Directorate General of Disease Control and Prevention Ministry of Health, 2015).

Distinguished guests,
Indonesia Health Development Program in 2015-2019 strengths in improving human quality life through Health Indonesia Program with family approach. The Indonesian Ministry of Health issued The Minister of Health Regulation (Permenkes) No. 39 Year 2016 as a Guideline of Implementation of Health Indonesia Program with Family Approach. This program has 12 main indicators as markers of a family health status.
Currently, many health programs have been implemented by Indonesian Ministry of Health, Provincial Health Offices, and District Health Offices. However, many health problems, some as mentioned above, still become health burdens. We may ask a question whether the programs that we conducted have answered the health problems we have in Indonesia.
It would be better if all health programs that we implement based on scientific health research, especially interdisciplinary research. The research should be related to detection, prevention, and treatment of diseases or problem solving for better health.
My dear colleagues,
Being a province with speciality, Special Region of Yogyakarta placed Traditional Medicine as one of the priority programs in Provincial Medium Term Development Plan (2017-2022). We still encounter many challenges in developing Traditional Medicine, especially in providing services which are based on scientific evidence.
Distinguished colleagues,
We look forward to results of interdisciplinary research which would support health problem solving, especially by developing traditional medicine in Yogyakarta. We believe that collaboration in interdisciplinary research would improve quality of human life.
Finally,
Thank you for your attention. We wish you a successful conference.

Wassalamu'alaikum Warahmatullahi Wabarakatuh,

On behalf of
the Head of Provincial Health Office
Special Region of Yogyakarta

Drg. Pembajun Setyaningastutie, M.Kes

SPEAKER OF INTERNATIONAL CONFERENCE

Zahid Iqbal
Al-Nafees Medical College Isra University Islamabad Campus Islamabad, Pakistan
"One Health Program for Public Health Benefit"

Prof. Dr. Abdul Khaliq
Professor, Department of Agronomy, University of Agriculture, Faisalabad
"Role of Agriculture in Poverty Alleviation of Rural Areas"

Fitri Arofati
Universitas Muhammadiyah Yogyakarta, Indonesia
"Continuing Professional Development of Practicing Nurses in Indonesia"

Tri Wahyuliati

Universitas Muhammadiyah Yogyakarta, Indonesia
"Diabetic Neuropathy - A Chance Towards A Better Treatment"

Mohammad Khalid Ashfaq
University of Mississippi, USA
"Natural Products –Use or Misuse"

Muhammad Mukhtar
American University of Ras Al Khaimah, United Arab Emirates
"Emerging Biotechnologies and Genomic Medicines in Human Health and Well-Being"

Muhammad Sasmito Djati
Brawijaya University Malang, Indonesia
"Herbal Medicine a Holistic Approach: in case of food supplement formulation of Sauropusandrogynus and Elephantopusscaberto modulate immune and hormonal system in pregnant Salmonella typhi infected mice"

REVIEWER

1. Dr. Zahid Iqbal, Ph.D (Isra University, Islamabad, Pakistan)
2. Prof. Dr. Abdul Khaliq (University of Agriculture, Faisalabad)
3. Dr. Mohammad Khalid Ashfaq, DVM, DTVM, MS, Ph.D (University of Mississippi, USA)
4. Dr. Muhammad Mukhtar, Ph.D (American University of Ras Al Khaimah, United Arab Emirates)
5. Dr. Ir. Muhammad Sasmito Djati, MS. (Brawijaya University Malang, Indonesia)
6. Fitri Arofiati, S.Kep., Ns., MAN., Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
7. Dr. SN Nurul Makiyah, S.Si., M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
8. dr. Iman Permana, M.Kes, Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
9. Dr. dr. Ikhlas M. Jenie, M.Med, Sc (Universitas Muhammadiyah Yogyakarta, Indonesia)
10. Dr. dr. Arlina Dewi, M.Kes, AAK (Universitas Muhammadiyah Yogyakarta, Indonesia)
11. dr. Oryzati Hilman, M.Sc, CMFM (Universitas Muhammadiyah Yogyakarta, Indonesia)
12. Dr. Dra. Yoni Astuti, M.Kes, Ph.D (Universitas Muhammadiyah Yogyakarta, Indonesia)
13. Dr. drg. Tita Ratya Utari, Sp. Ort (Universitas Muhammadiyah Yogyakarta, Indonesia)
14. Dr. dr. Tri Wahyuliati, Sp.S, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
15. Dr. Elsye Maria Rosa, M.Kep (Universitas Muhammadiyah Yogyakarta, Indonesia)
16. Dr. dr. Titiek Hidayati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
17. Dr. Shanti Wardaningsih, M.Kep., Ns., Sp.Kep.J., Ph.D. (Universitas Muhammadiyah Yogyakarta, Indonesia)
18. Dr. dr. Sri Sundari, M.Ke (Universitas Muhammadiyah Yogyakarta, Indonesia)
19. Dra. Lilis Suryani, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
20. Drh. Tri Wulandari K, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
21. Dr. dr. Wiwik Kusumawati, M.Kes (Universitas Muhammadiyah Yogyakarta, Indonesia)
22. Sabtanti Harimurti, S.Si., M.Sc., Ph.D., Apt. (Universitas Muhammadiyah Yogyakarta, Indonesia)

SPEAKER OF INTERNATIONAL CONFERENCE

ICMHS-O-1-38

The Influence of Parents Knowledge and Health Care Access to The Identification of Children with Hearing Impairment

Asti Widuri[1], Alazi[2], Muhammad Pringgo Arifianto[2]

[1] Otorrhinolaryngology Department, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia,

[2] Medical Student, Faculty of Medicine and Health Sciences, Universitas Muhammadiyah Yogyakarta, Indonesia.

email: astiwiduri@gmail.com

Abstract

Early identification and access to quality habilitative services designed for children with hearing loss is the key to developing language and communication skills commensurate with the children's cognitive abilities. Early identification will provide the opportunity for improved outcomes for thousands of children with hearing loss. The aims of this study is to review the role of parents knowledge and health care access to the identification of children with hearing impairment. The study design was cross-sectional, with the sample were 45 parents of children at SLB – B Karnnamanohara Yogyakarta at the nursery-child and play group. Interviewer administered a questionnaire to the parents, for evaluations of their knowledge about deaf children and health care access. After obtained the data from the each variable, then test with chi-square statistic. The significant result shown at parental knowledge (p=0,028) and health care access (p= 0,02). This means that there were significant differences between parental knowledge about speech and language development and health care access to early detection of deafness in children. The conclusion are parents knowledge and health care access influenced to the identification of children with hearing impairment.

Keywords: parental knowledge, speech and language development, early detection, children with hearing loss, health care access

INTRODUCTION

Hearing loss is one of the most common congenital anomalies, occurring in approximately 2-4 infants per 1000.[1] Prior to implementation of universal newborn screening, testing was conducted only on infants who met the criteria of the high-risk register (HRR). It was found that the HRR was not enough, given that as many as 50% of infants born with hearing loss have no known risk factors.[2] Without screening for hearing impairment, children routinely remain undetected until about 3 years of age, which is a critical period for language learning. Research has found that early identification hearing impairment and subsequent rapid intervention for these children can positively impact their language development.[3]

Early identification and intervention can prevent severe psychosocial, educational, and linguistic repercussions. Infants who are not identified before 6 months of age have delays in speech and language development. Intervention at or before 6 months of age allows a child with impaired hearing to develop normal speech and language, alongside his or her hearing peers.[4] Hence Early Hearing Detection and Intervention Programs (EHDI) has become a standard practice in these countries.[5] However the scenario is different in developing countries that do not have the prospect of screening or early detection either due to lack of professionals, resource constraints or delay in its detection.[6,7]

In places such as India, China and South Africa where UNHS has not yet been strongly implemented, hearing loss is often detected as a consequence of parental concerns regarding delays in speech and language development. Inadequate data and lack of a national programme for the prevention of hearing impairment necessitate an organized plan to prevent and combat this problem in a structured fashion.[8] The reasons of this high ratio of babies that were not detected are the follows: high ratio of consanguineous marriages depending on the family structure of the region, low socioeconomic level of most of the families, high number of gestations and irregular follow-ups during gestation.[9] A study conducted by Connolly et al in 2005 indicated that, as a result of the universal newborn hearing screening program in place from 1997-2001, the mean age of diagnosis was 3.9 months, with a mean age of intervention of 6.1 months.[10]

Hearing loss that may vary from slight to severe, leads to impairment of communication skills along with sensory deprivation and learning difficulties.[11] In order to prevent these developmental issues the hearing loss should be confirmed within three months after birth and hearing aids should be fitted within six months.[12,13] Children with hearing loss typically experience significant delays in language development and academic achievement. Although the impact of a severe or profound hearing loss is

well recognized, children with mild or moderate hearing loss also experience deficits in speech and language development. Studies have shown that hearing-impaired high school graduates have significantly lower average reading scores than those of their hearing peers, with deaf and hard-of-hearing students scoring at the fourth or fifth grade level.[14,15] The substantial parental delay of suspicion and its subsequent delay in identification and the amplification of childhood deafness can caused by lower knowledge and poor health care access.

MATERIALS AND METHODS

A cross-sectional study was done on 45 children with hearing impaiment at the nursery-child and play group Karnamanohara school. The criteria for enrollment was bilateral sensory neural deafness who either warrant hearing aid fitting for amplification or those who were already fitted with hearing aid but having inconsistent use or found ineffective. Any significant motor, visual, sensory or genetic disorders were excluded. Also those with surgically or medically correctable hearing deficits were not counted. A prior informed consent was sought before interviewer administered a questionnaire to the parents, for evaluations of their awareness and knowledge about speech and language development and health care access of the family.

RESULTS

There were 45 children diagnosed with SNHL at the nursery-child and play group Karnamanohara school, the age of detection was 27 children (60%) before 3 years old age and 18 children (40%) after 3 years old age. The parent knowledge evaluation are good that ≥ 50 % score on 24 parents and poor <50 % score on 21 parents. The health access good defined by having insurance for the family and the distance of health facility from home less than 5 kilometers (Table 1).

Tabel 1. Demographic Data of Deaf Children

		N	%
Gender	Boy	12	27
	Girl	28	73
Identification age	< 3 yo	27	60
	≥ 3 yo	18	40
Parents Knowledge	Good	24	53
	Poor	21	47
Health access	Good	27	60
	Poor	18	40

When knowledge of families were analyzed in terms of parental knowledge about speech and language development: 24 (53%) had good knowledge scores and 21 (%) had poor knowledge, having tested with the chi-square test showed a significance value was P = 0.028, showed in Table. 2

Tabel 2. Results of the Parents Knowledge and the Identification Age

	Good knowledge	Poor knowledge	P
Identification < 3 yo	18	9	0.028
Identification ≥ 3 yo	6	12	

When families were analyzed in terms of health coverage: 27 (%) had good health care access and 18 (%) had poor health care, they were had no health coverages and far from health facility, having tested with the chi-square test showed a significance value was P = 0.02, showed in Table. 3

Tabel 3. Results of the health access and the identification age

	Good health access	Poor health access	P
Identification < 3 yo	20	4	0.02
Identification ≥ 3 yo	7	14	

DISCUSSION

Language deficits from undetected and untreated hearing loss infant can result in low level literacy, educational under-achievement, and poor socialization.[4] Speech and language development of babies improves quickly in the first years, especially in the first months of life. A six-month-old baby shows more interest to speaking voice than the other sound sources. The baby can make simple sentences when he/she is 18-month old. Thus early recognition of hearing loss, that is among the common congenital problems, is quite important.[16]

EHDI has become a standard practice in many countries. However the scenario is different in developing countries that do not have the prospect of screening or early detection either due to lack of professionals, resource constraints or delay in its detection.[1] Pediatricians and other primary care providers have routinely utilized otoscopy, pneumatic otoscopy or tympanometry to diagnose common middle-ear disorders, but have had to rely on subjective methods such as observations of the child's behavioral response to sound (i.e., hand clapping or bell ringing) or parent perceptions of the child's behavior, to screen inner ear functioning of children 3 years of age. This study showed 18 deaf children (40%) detected the hearing loss after 3 years old age it may be consequent on lack of parental knowledge about the handicap and its identification.

It was found that the family involvement and age of enrollment have significant influence in language development and hence the involvement of family has a positive outcome for the development of children with hearing impairment. Also early interventional strategies depend on the attitude of parents or care providers, their motivation, responsiveness to the child, and the social support, all of which can influence long term outcomes. It has also pointed out that the parents who become involved in intervention have been found to communicate better with their children and to contribute more to the child's progress than who do not participate in such programs. Hence effective intervention also should be family centered and parents need to consider from the time of amplification.[4]

Another reasons of delayed identification children hearing loss in this study was family social-economic that poor health access, its because National health systems in most developing countries are too weak to bear the added burden without external technical and financial support to implement national programme for early detection and intervention of childhood hearing loss consistent with and necessary for the existing campaigns of the World bank, UNICEF and UNESCO.[17]

CONCLUSION

The delay of identification childhood deafness and relatively high prevalence of hearing impairment indicate that the attainable realistic goal of EHDI has not yet been achieved. It may be consequent on lack of parental knowledge about the handicap and its identification and poor health access.

REFERENCES

1. Olusanya BO, Neonatal hearing screening and intervention in resource limited settings: an overview. *Arch Dis Child*. 2012; 1-6.
2. American Speech- Language-Hearing Association. Executive Summary for JCIH year 2007 position statement: Principles and Guidelines for Early Hearing Detection and Intervention Programs. Available from www.asha.org.
3. Yoshinaga-Itano, C. Early intervention after universal neonatal hearing screening: impact on outcomes. Mental retardation and developmental disabilities research reviews. 2003. 9 (4), pp. 252-266.
4. Moeller, MP. Early intervention and language development in children who are deaf and hard of hearing. 2000. Pediatrics, 106 (3).
5. Verhaert N, Willems M, Van E, Desloovere C. Impact of early hearing screening and treatment on language development and education level: Evaluation of 6 years of universal newborn hearing screening (ALGOW) in Flanders, Belgium. *Int J Pediatr Otorhinolaryngol.* 2008; 72:599—60*8*

6. Swanepoel DW, Storbeck C, Friedland P. Early hearing detection and intervention in South Africa. *Int J Pediatr Otorhinolaryngol*. 2009;73(6):783-86.
7. Oulsanya BO, Making targeted screening for infant hearing loss an effective option in less developed countries, *Int J Pediatr Otorhinolaryngol.* 2011; 75:316-21.
8. Rout N, Singh U. Age of suspicion, identification and intervention for rural Indian children with hearing loss. *Eastern Journal of Medicine.* 2010; 15:97-102.
9. Sennaroglu G, Akmese PP. Risk Factors for Hearing Loss and Results of Newborn Hearing Screening in Rural Area. *Int. Adv. Otol. 2011; 7:(3) 343-350*
10. Connolly JL, Carron JD, Roark SD. Universal newborn hearing screening: are we achieving the Joint Committee on Infant Hearing (JCIH) objectives?. *Laryngoscope*. 2005; Feb. 115(2):232-6. [Medline]
11. Moore JK. Maturation of human auditory cortex: implications for speech perception. Ann Otol Rhinol Laryngol. 2002; 189:7-10.
12. Bolat H, Bebitoglu F, Ozbas S, Altunsu A, Kose M. National Newborn Hearing Screening Program in Turkey: Struggles and implementations between 2004 and 2008. Int J Pediatr Otolaryngol. 2009; 73:1621-23.
13. Kennedy C.R., and D. McCann, and M. Campbell, and C. Law, and M. Mullee, and S. Petrou, and P Watkin, and S Worsfold, and HM Yoen, and J. Stevenson. 2006. Language ability after early detection of permanent childhood hearing impairment. The New England Journal of Medicine, 354 (20), pp 2131-2140.
14. Meinzen-Derr, J., Wiley, S., & Choo, D. Impact of early intervention on expressive and receptive language development among young children with permanent hearing loss. American Annals of the Deaf. 2011. 155(5), 580-590.
15. Vohr, B, and J. Jodoin-Krauzyk, and R. Tucker, and D. Topol, and M. Johnson, and M. Ahlgren, and L. Pierre. Expressive vocabulary of children with hearing loss in the first 2 years of life: impact of early intervention. Journal of Perinatology.2011. 31 (4), pp. 274-280.
16. Yoshinga-Itano C, Sedey AL, Coulter DK, Mehl AL. Language of early and later-identified children with hearing loss. Pediatrics. 1998; 102:1161-71.
17. Nelson, H. D, and C. Bougatsos, and P. Nygren, and 2001 US Preventive Services Task Force. Universal newborn hearing screening: systematic review to update the 2001 US Preventive Services Task Force Recommendation. Pediatrics, 2008. 122 (1), pp.266-276.